AWARD/CONTRACT	1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)	RATING	PAGE OF PAGES 1 | 2

2. CONTRACT (Proc. Inst. Ident.) NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQUEST/PROJECT NO.
EP-C-17-031/68HERC20F0073	See Block 20C	PR-ORD-19-02206

5. ISSUED BY	CODE	CAD	6. ADMINISTERED BY (If other than Item 5)	CODE
CAD US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: W136 Cincinnati OH 45268-0001				

7. NAME AND ADDRESS OF CONTRACTOR (No., street, country, State and ZIP Code)	8. DELIVERY ☐ FOB ORIGIN ☒ OTHER (See below)
TETRA TECH, INC. Attn: George Townsend 10306 EATON PL STE 340 FAIRFAX VA 22030	9. DISCOUNT FOR PROMPT PAYMENT
	10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN ▶ ITEM
CODE 198549560 FACILITY CODE	

11. SHIP TO/MARK FOR	CODE	ORD CIN	12. PAYMENT WILL BE MADE BY	CODE	RTP FMC
Office of Research and Development US Environmental Protection Agency 26 West Martin Luther King Drive Cincinnati OH 45268			RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711		

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:	14. ACCOUNTING AND APPROPRIATION DATA
☐ 10 U.S.C. 2304 (c) ( ) ☒ 41 U.S.C. 3304 (a) ( )	See Schedule

15A. ITEM NO	15B. SUPPLIES/SERVICES	15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
	Continued				
	15G. TOTAL AMOUNT OF CONTRACT ▶				$88,234.00

16. TABLE OF CONTENTS

(X)	SEC.	DESCRIPTION	PAGE(S)	(X)	SEC.	DESCRIPTION	PAGE(S)
		PART I - THE SCHEDULE				PART II - CONTRACT CLAUSES	
	A	SOLICITATION/CONTRACT FORM			I	CONTRACT CLAUSES	
	B	SUPPLIES OR SERVICES AND PRICES/COSTS				PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH.	
	C	DESCRIPTION/SPECS./WORK STATEMENT			J	LIST OF ATTACHMENTS	
	D	PACKAGING AND MARKING				PART IV - REPRESENTATIONS AND INSTRUCTIONS	
	E	INSPECTION AND ACCEPTANCE			K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
	F	DELIVERIES OR PERFORMANCE					
	G	CONTRACT ADMINISTRATION DATA			L	INSTRS., CONDS., AND NOTICES TO OFFERORS	
	H	SPECIAL CONTRACT REQUIREMENTS			M	EVALUATION FACTORS FOR AWARD	

CONTRACTING OFFICER WILL COMPLETE ITEM 17 (SEALED-BID OR NEGOTIATED PROCUREMENT) OR 18 (SEALED-BID PROCUREMENT) AS APPLICABLE

17. ☒ CONTRACTOR' S NEGOTIATED AGREEMENT (*Contractor is required to sign this document and return* 0 *copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. *(Attachments are listed herein.)*

18. ☐ SEALED-BID AWARD (*Contractor is not required to sign this document.*) Your bid on Solicitation Number 68HERC20R0007, including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your bid, and (b) this award/contract. No further contractual document is necessary. (Block 18 should be checked only when awarding a sealed-bid contract.)

19A. NAME AND TITLE OF SIGNER (Type or print)	20A. NAME OF CONTRACTING OFFICER
	Andrea Dehne

19B. NAME OF CONTRACTOR	19C. DATE SIGNED	20B. UNITED STATES OF AMERICA	20C. DATE SIGNED
BY (Signature of person authorized to sign)		BY Andrea C. Dehne ELECTRONIC SIGNATURE (Signature of the Contracting Officer)	12/17/2019

NAME OF OFFEROR OR CONTRACTOR

TETRA TECH, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	DUNS Number: 198549560 TOCOR: Michael Ware Max Expire Date: 12/18/2020 Delivery: 12/18/2020 Accounting Info: 19-20-C-26US000-000FK7XR3-2532-26A6A-1926USE084-00 1 BFY: 19 EFY: 20 Fund: C Budget Org: 26US000 Program (PRC): 000FK7XR3 Budget (BOC): 2532 Cost: 26A6A DCN - Line ID: 1926USE084-001 Period of Performance: 12/19/2019 to 12/18/2020				
0001	Task Order Issuance Line Item: Technical Support for EPA/ORD Ecological Assessment Programs Fully Funded Firm-Fixed-Price Task Order Delivery-Invoice Payment Schedule shall not exceed a frequency greater than once a month and 90% of the task order price. Acceptance for invoicing is based on deliverable approval by the TOCOR. For efficient processing IAW FAR clause 52.232-32, performance based payment invoicing amounts will not be submitted until the TOCOR provides deliverable approval. The TOCOR will notify Tetra Tech within 14 days of submission of a deliverable of EPAs intention to approve or disapprove. TOCOR: Michael Ware/(513)569-7731/ware.michael@epa.gov ALTOCOR: Jim Owens/(513)569-7235/owens.jim@epa.gov				88,234.00

PERFORMANCE WORK STATEMENT

Tetra Tech Inc.
Contract # EP-C-17-031
PR-ORD-19-02206/SOL 68HERC20R0007
TO 68HERC20F0073

I. Title: Review of Current Mapping Approaches and Geodatabases for Aquatic Systems

EAS Short Title: Aquatic Systems Mapping review

II. Period of Performance: TO award through 12 months after award

III. TOCOR:
Michael Ware
U.S. Environmental Protection Agency
Office of Research and Development
National Exposure Research Laboratory
513-569-7731
ware.michael@epa.gov

Alternate TOCOR:
Jim Owens
U.S. Environmental Protection Agency
Office of Research and Development
National Exposure Research Laboratory
513-569-7235
owens.jim@epa.gov

IV. Background:

The U.S. Environmental Protection Agency (EPA) and Army Corps of Engineers (COE) have issued a proposed rule providing a "Revised Definition of 'Waters of the United States'" (Fed Reg. Vol 84 No 31, Feb. 14, 2019) for determining what waters are jurisdictional under the U.S. Clean Water Act (CWA). During pre-proposal outreach, EPA and COE heard numerous calls for enhancing geospatial data tools to inform jurisdictional decisions and better support CWA programs. There are many approaches for identifying aquatic resources (here, primarily streams, rivers, wetlands), including field mapping, remote sensing techniques, terrain mapping and modeling approaches. Each approach has its own advantages and disadvantages, limitations (e.g., spatial extent to which it has or can been applied), and sources of error. Federal agencies have long developed maps of aquatic systems. For example, the National Wetlands Inventory, a widely-used map produced by the U.S. Fish and Wildlife Service, can be used to easily identify wetlands across the nation at a fine resolution but is a static map derived from varying dates of imagery, some dating back to the 1970s. As another example, the National Hydrography DatasetPlusV2 (NHDPlusV2) - high resolution, led by the U.S. Geological Survey, is available for much of the country at the 1:24,000 scale or higher yet the methodologies for inclusion of smaller streams and ephemeral streams vary, creating a lack of consistency across the country. In general, it is unclear what wetland and stream databases have partial or complete information that relate to regulatory needs.

State and localized efforts also undertake aquatic system mapping, yet it is unclear what current geodatabases and mapping approaches of streams, rivers and wetlands are in use and what attributes, methodologies, and errors are associated with each of these approaches and geodatabases.

In addition to mapping the spatial location of streams and rivers, there are many methodologies and approaches to determining streamflow duration (quantitative measurements of stream flow) and streamflow permanence, often divided into three classes of perennial, intermittent and ephemeral streams. Such approaches may include field-based measurements, in-stream sensors, existing stream gage analysis, statistical estimations, time series analysis of remote-sensing data, and physical modeling approaches. There is a need to compile and compare these varied approaches as we consider a range of policy concerns and what gaps may exist in currently available approaches.

V. Objectives:

This Task Order is to 1) catalogue and review existing geodatabases and mapping approaches for stream and wetland systems and 2) catalogue and review geodatabases and methodologies that classify streamflow permanence. The task shall collect, analyze, and synthesize the spatial extent, resolution, attributes, methodologies, and sources of error for stream and wetland systems. Within river networks, the focus shall be on lower-order stream systems as more uncertainty and variability in mapping remains with smaller streams than established higher-oder river corridors, with the exception of the arid West, where the review shall focus on streams of all orders. The synthesis, in the form of tables and a report, shall highlight the strengths and weaknesses of various datasets and mapping approaches as well as identify gaps and opportunities for improved mapping and flow-permanence datasets. The task shall also explore the various methodologies and techniques for determining stream flow duration and permanence resulting in classification systems of perennial, intermittent, and ephemeral streams with a particular focus on landscape models and more broad scale techniques.
The following sections describe the tasks in more detail.

VI. Tasks and Deliverables:

Task 1 – Establish communication and develop Quality Assurance Project Plan (QAPP)

SubTask 1.1. Establish communication

The contractor shall establish communication with the Task Order Contract Officer Representative (TOCOR) and develop a regular reporting schedule. The Contractor shall contact the TOCOR and schedule a kickoff project meeting. In collaboration with the TOCOR, the Contractor shall also establish a schedule for regular progress reports, project meetings, and other communications throughout the period of performance of this Task Order.

> *Deliverable 1.1.A.* Brief, written progress reports as email to the TOCOR. Due monthly or upon request by the TOCOR for the duration of this Task Order.

> *Deliverable 1.1.B.* Project meetings and other communications, such as conference calls, as needed. Due upon request by the TOCOR for the duration of this Task Order.

SubTask 1.2. Development of a QAPP (Contract PWS 5)

All work conducted under this Task Order shall be performed pursuant to an EPA approved Quality Assurance Project Plan (QAPP). The contractor shall develop a Quality Assurance Project Plan within 3 weeks following task order award for review, potential revision, and approval by the TOCOR and the EPA QA Manager. The QAPP shall outline the approach and measures the Contractor will implement to ensure a high standard of quality in data and record collection, analysis and written deliverables. The QAPP shall be in conformance with EPA's *Requirements for Quality Assurance Project Plans* (EPA QA/R-5).

All electronic deliverables (i.e., computer files) shall be submitted in a format acceptable to EPA including documents in pdf, word and excel.

The contractor shall not initiate tasks related to any items needing QA review until the TOCOR furnishes, in writing, a notice that the QAPP for the current period has been accepted by EPA.

> *Deliverable 1.2.A*: A draft QAPP submitted to the TOCOR and QA Manager for review. Due 3 weeks after being issued the Task Order.
>
> *Deliverable 1.2.B*: A revised QAPP addressing TOCOR comments on the draft submitted to the TOCOR for approval. Due 1 week after receiving comments on Deliverable 1.2.A.

Task 2 – Technical review of approaches and geodatabases and associated literature for aquatic systems (Contract PWS Task Area 2 and Task Area 3)

The contractor is tasked with conducting a review of existing approaches and geodatasets for mapping aquatic resources across the U.S. from peer-reviewed literature, web-based technologies, and technical publications. This review shall examine methods (e.g., classification techniques, source imagery used, inclusion/exclusion decision points, statistical models) and attributes (e.g., resolution, extent, refresh rate, required inputs, scale, sources and magnitude of different error types) of datasets over a range of geographic and climatic conditions in the United States. The search shall begin with federal, state and tribal databases. Non-governmental mapping activities shall also be included but not exceed 100 stream and 100 wetland geodatabases/methodologies. The types of mapping methods and approaches for stream and wetland systems shall include field/physically-derived literature and geodatasets with attributes that include but are not limited to coverage, spatial resolution, mapping methodology and data inputs, limitations, specific stream or wetland attributes defined, any certainty analyses performed, and sources of error. The mapping review of aquatic systems shall also include model-derived literature and geodatasets with their coverages, spatial resolution, mapping methodology and data inputs, limitations, specific stream or wetland attributes defined, any certainty analyses performed, and sources of error. The review shall first be developed in the tabular form and preliminary table headings will be provided to the contractor to begin and guide the data collection process (see appendix 1 for headings and separate Excel attachment). Separate tables shall be done for streams and wetlands. Copies of cited documents shall be kept as PDFs in a library that shall be delivered with the detailed table. A synthesis of the review shall highlight crucial information/data gaps and recommend future research for using or developing new technologies and data sources to close those gaps.

> *Deliverable 2.A.* Initial table listing all reviewed literature and databases for stream systems

and wetland systems. To be reviewed by ORD researchers for omissions

*2.*A.1 – Field-based approaches to Stream Mapping

*2.*A.2 – Field-based approaches to Wetland Mapping

*2.*A.3 – Model/Remote-based approaches to Stream Mapping and methodologies

*2.*A.4 – Model/Remote-based approaches to Wetland Mapping and methodologies

Deliverable 2.B. Annotated and detailed table of reviewed literature and databases for stream systems and wetland systems with comments on the utility of the reviewed material that includes methods, attributes, and sources of error and copies of cited literature.

*2.*B.1 – Field-based approaches to Stream Mapping

*2.*B.2 – Field-based approaches to Wetland Mapping

*2.*B.3 – Model/Remote-based approaches to Stream Mapping and methodologies

*2.*B.4 – Model/Remote-based approaches to Wetland Mapping and methodologies

Deliverable 2.C. Analysis and synthesis report of reviewed tables that compares existing datasets, identifies data gaps and promising methodologies in a format that can be developed into a manuscript for both streams and wetlands

Task 3 – Technical review of literature, approaches and geodatabases for classifying streamflow duration and permanence (Contract PWS Task Area 2 and Task Area 3)

The contractor is tasked with conducting a review of existing literature, approaches, and geodatasets for measuring and modeling streamflow duration and permanence with resulting permanence classifications across the United States. This review shall examine methods (e.g., classification techniques, streamflow duration curve analysis, statistical models, estimating flow permeance in ungauged streams) and attributes (e.g., resolution, extent, temporal record, required inputs, sources of error) of datasets over the range of geographic and climatic conditions in the United States. For example, the NHD has estimates of permanence (perennial, intermittent, ephemeral) yet it is not immediately clear how those estimates were made. Such information is necessary to inform the applicability of such datasets to programmatic needs. Federal, state, tribal and non-governmental stream flow estimation activities identified in Task 2 shall be considered first with a priority in the review given to products that classify lower-order streams (Strahler stream orders 0-3) as well as stream classification in the arid West (not limited to lower-order streams). Additional reviews of streamflow estimation methodologies not identified in task 2 (presumably due to a lack of an associated geospatial dataset) shall be limited to 50 additional methodologies. The review shall first be developed in the tabular form and preliminary table headings will be provided to the contractor to begin and guide the data collection process (see appendix 2 and separate attachment). Copies of cited documents will be kept as PDFs in a library that will be delivered with the detailed table. A synthesis of the review will highlight crucial information/data gaps and recommend future research for using or developing new technologies and data sources to close the information gaps on streamflow permanence

Deliverable 3.A. Initial tables listing all reviewed literature and databases for stream permanence or streamflow duration measures. To be reviewed by ORD researchers for omissions.

*3.*A.1 – Streamflow permanence of mapped streams via field measures (ex. NHDplus)

*3.*A.2 – Streamflow permanence of mapped streams via modeling/landscape techniques (ex. USGS PROSPER)

3.A.3 – Streamflow duration analyses with relation to permanence classifications

Deliverable 3.B. Annotated and detailed table of reviewed literature and databases for stream

permanence measures that includes methods, attributes, and sources of error and copies of cited literature.

*3.*B.1 – Streamflow permanence of mapped streams via field measures

*3.*B.2 – Streamflow permanence of mapped streams via modeling/landscape techniques

3.B.3 – Streamflow duration analyses with relation to permanence classifications

Deliverable 3.C. Analysis and synthesis report of reviewed table that compares existing datasets and identifies data gaps and promising new technologies that can be developed into a manuscript

VII. Schedule of Milestones and Deliverables:

TASK	SUBTASK	DELIVERABLE	SCHEDULE
1	1.1	1.1A. Progress reports	Due monthly
1	1.1	1.1.B. Other communication	Due upon request by the TOCOR
1	1.2	1.2.A. Draft QAPP submitted to the TOCOR and QA Manager for review.	Due 3 weeks after Task Order award
1	1.2	1.2.B. Final QAPP	Due 1 week after receiving comments on Deliverable 1.2.A
2	2.1	2.1.A. Initial tables of reviewed stream and wetland datasets	Due 6 weeks after receiving final QAPP
2	2.1	2.1.B. Annotated and detailed tables of reviewed stream and wetland datasets with attributes and library of cited lit	Due 10 weeks after receiving comments/omissions on Deliverable 2.A
2	2.1	2.1.C. Analysis and synthesis of tables in report form	Due 8 weeks after receiving comments on Deliverable 2.B
3	3.1	3.1.A. Initial table of reviewed stream duration and permanence datasets	Due 6 weeks after receiving Deliverable 2.C
3	3.1	3.1.B. Annotated and detailed table of reviewed stream duration and permanence datasets with attributes and library of cited lit	Due 8 weeks after receiving comments/omissions on Deliverable 3.A
3	3.1	3.1.C. Analysis and synthesis of tables in report form	Due 4 weeks after receiving comments on Deliverable 3.B

VIII. Acceptance Criteria:

The Contractor shall prepare high quality technical and written deliverables. The Deliverables shall be edited for grammar, spelling, and logic flow. The technical information shall be reasonably complete and presented in a logical, readable manner. Figures submitted shall be of high quality similar to presentations developed for national scientific forums and should be formatted as jpeg or png files. Text deliverables shall be provided in Microsoft Word or compatible format.

Appendix 1 – Excel template for Stream and River geodatabase entries

geodataset title	spatail extent/coverage states/ecoregion/HUCs	resolution/min map unit	available data types if vector or classes if raster	methodology used (detail of field-based, stat model, process model, aerial, satelite imagery, etc)	input layers used and dates of inputs and any refresh rates if appplicable	critical cutoff or threshold decisions
NHD high res	conterminous US	1:24,000 to 1:10,000	flowline vectors include stream-river, ditch, canal, artificial path, waterbody vectors include marshswamp, lakepond, reservoir,...	ditigal conversion of original USGS 1:24k topo maps which were aerial steroimagery with field work verification...	aerial imagery - dates variable - many in 1950-60s	low order streams cut off at...

permanence classification?	streamflow estimation?	additional attributes included in dataset	quantification of error performed/ levels of omision commision	accepted level of longitudinal error	accepted level of latitudinal error	projection	metadata present? Appears complete?	FGDC compliant?
yes. Perrenial, intermittent, ephemeral in arid SW	no	value added watershed attributes on landscapes		12m longitudinal error			yes; yes	yes

citations to include	versions and date of most recent version	data type - vector or raster	effective typology (flow direction, polygon by habitat type etc)	source and data website	metadata website	any information on breaks within dataset? Dams, roads, culverts etc

Appendix 2 - Excel template for streamflow and permanence geodatabase/methods entries

geodataset/method title	spatail extent/coverage states/ecoregion/HUCs	resolution/min map unit	streamflow estimation? Type of summary statstics used?	methodology used (detail of field-based indicators, stat model, process model, stream gage extrapolations, etc)	input data/layers used and dates of inputs and any refresh rates if appplicable	critical cutoff or threshold decisions

streamflow duration calculated?	resulting permanence classification?Y/N	additional attributes included in dataset	quantification of error performed	projection	metadata present? Appears complete?	FGDC compliant?

citations to include	versions and date of most recent version	data type - vector or raster based estimations	source and data website	metadata website

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
P00001	See Block 16C		

6. ISSUED BY CODE CAD

CAD
US Environmental Protection Agency
26 West Martin Luther King Drive
Mail Code: W136
Cincinnati OH 45268-0001

7. ADMINISTERED BY *(If other than Item 6)* CODE

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

TETRA TECH, INC.
Attn: John Hochheimer
10306 EATON PL STE 340
FAIRFAX VA 22030

CODE 198549560 FACILITY CODE

(x) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED *(SEE ITEM 11)*

x 10A. MODIFICATION OF CONTRACT/ORDER NO.
EP-C-17-031
68HERC20F0073

10B. DATED *(SEE ITEM 13)*
12/17/2019

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended , by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted ; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted , such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*
See Schedule

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
X	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation data, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor ☒ is not ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

DUNS Number: 198549560
TOCOR: Michael Ware Max Expire Date: 12/18/2020
Payment:
Period of Performance: 12/19/2019 to 12/18/2020
Delivery-Invoice Payment Schedule shall not exceed a frequency greater than once a month and 90% of the task order price. Acceptance for invoicing is based on deliverable approval by the TOCOR. For efficient processing IAW FAR clause 52.232-32, performance based payment invoicing amounts will not be submitted until the TOCOR provides deliverable approval. The TOCOR will notify Tetra Tech within 14 days of submission of a deliverable of EPAs intention to approve or disapprove.

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
		Andrea Dehne	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		ELECTRONIC SIGNATURE *(Signature of Contracting Officer)*	10/13/2020

NAME OF OFFEROR OR CONTRACTOR
TETRA TECH, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	TOCOR: Michael Ware/(513)569-7731/ware.michael@epa.gov ALTOCOR: Jim Owens/(513)569-7235/owens.jim@epa.gov				

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES

2. AMENDMENT/MODIFICATION NUMBER	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQUISITION NUMBER	5. PROJECT NUMBER *(If applicable)*
	08/13/2020		

6. ISSUED BY	CODE	7. ADMINISTERED BY *(If other than Item 6)*	CODE
Raoul D. Scott, Director OMS/ARM/OAS/Policy, Training and Oversight Division US Environmental Protection Agency, Mail Code 3802R 1200 Pennsylvania Avenue, NW Washington, DC 20004			

8. NAME AND ADDRESS OF CONTRACTOR *(Number, street, county, State and ZIP Code)*	(X)	9A. AMENDMENT OF SOLICITATION NUMBER
To All EPA Contractors	☐	9B. DATED *(SEE ITEM 11)*
	☒	10A. MODIFICATION OF CONTRACT/ORDER NUMBER To all EPA Contracts and Orders
		10B. DATED *(SEE ITEM 13)*
CODE / FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NUMBER AS DESCRIBED IN ITEM 14.

CHECK ONE	
☐	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NUMBER IN ITEM 10A.
☒	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation data, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
☐	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
☐	D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor ☒ is not ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

This contract/order is being modified in accordance with the applicability instructions in interim FAR Case 2019-009, and FAR 4.2105, requiring contracting officers to include FAR clause 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

See attached for the full text version of FAR 52.204-25. Contractor Acknowledgment of receipt required.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
		Raoul D. Scott, Director Policy, Training and Oversight Division	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		RAOUL SCOTT Digitally signed by RAOUL SCOTT Date: 2020.07.30 11:40:17 -04'00' *(Signature of Contracting Officer)*	

Previous edition unusable

STANDARD FORM 30 (REV. 11/2016)
Prescribed by GSA FAR (48 CFR) 53.243

52.204-25 Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

As prescribed in 4.2105(b) and in the applicability instructions in interim FAR Case 2019-009, insert the following clause:

Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Aug 2020)

(a) *Definitions.* As used in this clause—

Backhaul means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (e.g., connecting cell phones/towers to the core telephone network). Backhaul can be wireless (e.g., microwave) or wired (e.g., fiber optic, coaxial cable, Ethernet).

Covered foreign country means The People's Republic of China.

Covered telecommunications equipment or services means–

(1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);

(2) For the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);

(3) Telecommunications or video surveillance services provided by such entities or using such equipment; or

(4) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Critical technology means–

(1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;

(2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled-

(i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or

(ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

Interconnection arrangements means arrangements governing the physical connection of two or more networks to allow the use of another's network to hand off traffic where it is ultimately delivered (e.g., connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.

Reasonable inquiry means an inquiry designed to uncover any information in the entity's possession about the identity of the producer or provider of covered telecommunications equipment or services used by the entity that excludes the need to include an internal or third-party audit.

Roaming means cellular communications services (e.g., voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.

Substantial or essential component means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) Prohibition. (1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. The Contractor is prohibited from providing to the Government any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract, or extending or renewing a contract, with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract.

(c) *Exceptions.* This clause does not prohibit contractors from providing—

(1) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(2) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(d) Reporting requirement.

(1) In the event the Contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the Contractor is notified of such by a subcontractor at any tier or by any other source, the Contractor shall report the information in paragraph (d)(2) of this clause to the Contracting Officer, unless elsewhere in this contract are established procedures for reporting the information; in the case of the Department of Defense, the Contractor shall report to the website at https://dibnet.dod.mil. For indefinite delivery contracts, the Contractor shall report to the Contracting Officer for the indefinite delivery contract and the Contracting Officer(s) for any affected order or, in the case of the Department of Defense, identify both the indefinite delivery contract and any affected orders in the report provided at https://dibnet.dod.mil.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause

(i) Within one business day from the date of such identification or notification: the contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) *Subcontracts.* The Contractor shall insert the substance of this clause, including this paragraph (e) and excluding paragraph (b)(2), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

(End of clause)

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
P00002	See Block 16C	PR-ORD-21-00682	

6. ISSUED BY	CODE	7. ADMINISTERED BY *(If other than Item 6)*	CODE
CAD	CAD		

CAD
US Environmental Protection Agency
26 West Martin Luther King Drive
Mail Code: W136
Cincinnati OH 45268-0001

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

TETRA TECH, INC.
Attn: John Hochheimer
10306 EATON PL STE 340
FAIRFAX VA 22030

CODE 198549560 FACILITY CODE

(x) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED *(SEE ITEM 11)*

x 10A. MODIFICATION OF CONTRACT/ORDER NO.
EP-C-17-031
68HERC20F0073

10B. DATED *(SEE ITEM 13)*
12/17/2019

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended , by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted ; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted , such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*
See Schedule

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation data, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER *(Specify type of modification and authority)* BILATERAL AGREEMENT - CONFIRM DELIVERABLE RECEIPT IN FULL FOR TASK ORDER CLOSEOUT

E. IMPORTANT: Contractor ☐ is not ☒ is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

DUNS Number: 198549560
TOCOR: Michael Ware Max Expire Date: 12/18/2020
LIST OF CHANGES:
Reason for Modification: Confirm Order Close Out

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
		Andrea Dehne	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		Andrea C. Dehne ELECTRONIC SIGNATURE *(Signature of Contracting Officer)*	03/17/2021

NAME OF OFFEROR OR CONTRACTOR
TETRA TECH, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711 Period of Performance: 12/19/2019 to 12/18/2020 Delivery-Invoice Payment Schedule shall not exceed a frequency greater than once a month and 90% of the task order price. Acceptance for invoicing is based on deliverable approval by the TOCOR. For efficient processing IAW FAR clause 52.232-32, performance based payment invoicing amounts will not be submitted until the TOCOR provides deliverable approval. The TOCOR will notify Tetra Tech within 14 days of submission of a deliverable of EPAs intention to approve or disapprove. TOCOR: Michael Ware/(513)569-7731/ware.michael@epa.gov ALTOCOR: Jim Owens/(513)569-7235/owens.jim@epa.gov				